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AUGUST, 1941
Vol. 61 No. 8

AMERICAN FRUIT GROWER

The NATIONAL FRUIT MAGAZINE

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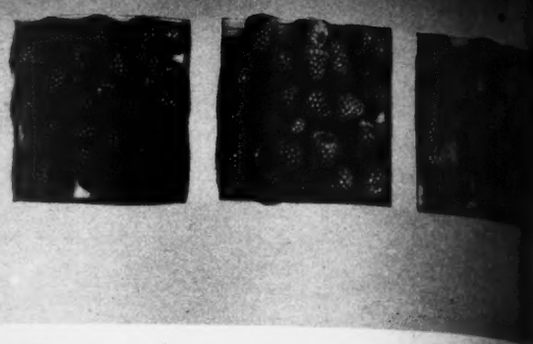
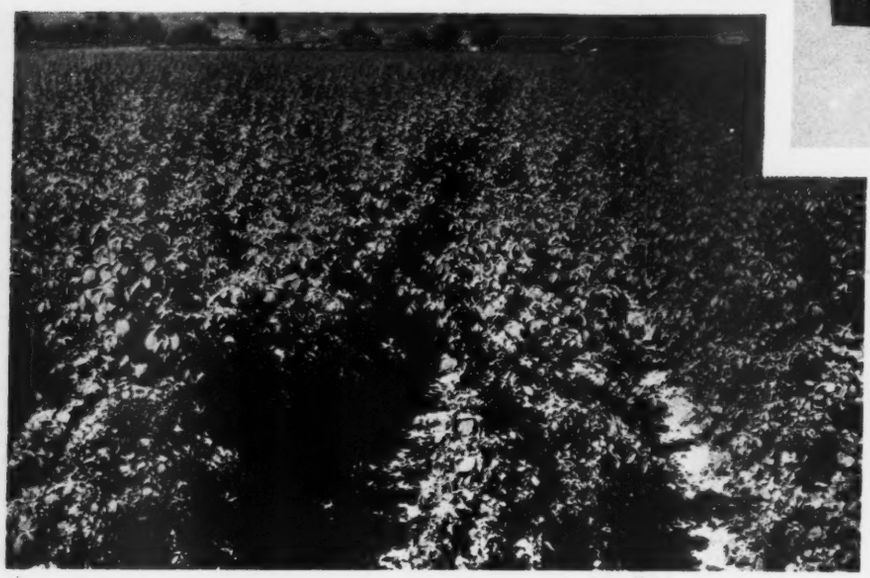
Right—Comparative samples of Cuthbert (left), the new Washington (center), and Lloyd George red raspberry varieties. Washington is a hybrid of Cuthbert and Lloyd George. Cuthbert suffers from a peculiar form of winter injury which results from the mild weather during the winter.

Below—A field of new Washington red raspberry plants near Puyallup, Washington. The crop is estimated to be about 15,000 pounds per acre. Growers in the Pacific Northwest quote their prices by the pound since most of the berry production is sold to canneries and freezing plants.





WASHINGTON BERRY GROWERS SMILE AGAIN

By C. D. SCHWARTZE
Western Washington Experiment Station

THE fact has not been publicized much but the State of Washington has been no land of milk and honey for its berry growers during the last few years. For a decade or more a combination of decreasing yields per acre, higher costs and lower prices, almost brought despair to the hearts of many growers who had profited handsomely in former years when diseases and insect pests were unknown in berry fields and when returns from raspberries and blackberries sometimes reached $2000.00 per acre in the productive Puyallup Valley.

The depression years were discouraging but now things are again on the up-swing. Prices were fairly good in 1940 and they are better in 1941. At the time of writing, red raspberries are quoted at 10 to 11 cents a pound to the grower; blackberries are opening at about 5 cents; and strawberry growers have received on the average about 5 cents a pound for their crops. Prices quoted by the pound will be in unfamiliar terms to many berry growers in other berry-producing regions but this is the common basis for prices in the Pacific Northwest where the bulk of the production now goes to canneries and freezing plants.

Small fruits production in the State of Washington is centered mainly west of the Cascade Mountains in valleys adjoining the eastern shores of Puget Sound. In 1936 a special survey by the United States Bureau of Agricultural Economics found that this district has about 5000 acres of strawberries or 75 per cent of the State's total, approximately 3700 acres of red raspberries or 89 per cent of the total acreage, and 1600 acres or practically all of the blackberries grown in the State.

In addition to these crops, western Washington produces 400 acres of loganberries, 200 acres of youngberries and boysenberries, 600 acres of cranberries, a sizeable acreage of gooseberries, currants and grapes, and a small but growing acreage of cultivated blueberries.

Although variable as to soil and distinctly seasonal as to rainfall, this region has, perhaps, as near the ideal climate for production of small fruits

(Continued on page 10)

Second from top—A field of Cuthbert raspberries which shows evidence of winter-kill at Puyallup.

Middle—An Evergreen blackberry field showing the method of training the canes in the winter.

Bottom—A raspberry field in the Puyallup Valley showing the three-wire trellis system of training.

What customer can resist buying those berries when presented by such an appealing young girl? At many orchards, fruit growers' daughters prove to be effective salesmen and are a great help at the grower's fruit market.

STAR SALESMEN

BRIGHT EYES AND SMILES MAKE ROADSIDE SALES

By RICHARD T. MEISTER

"HELLO, what would you like today!" said a bright cheerful voice. Contrast that, I thought to myself, with the "Hullo, what d'ya want," I heard at the market stand down the road a ways.

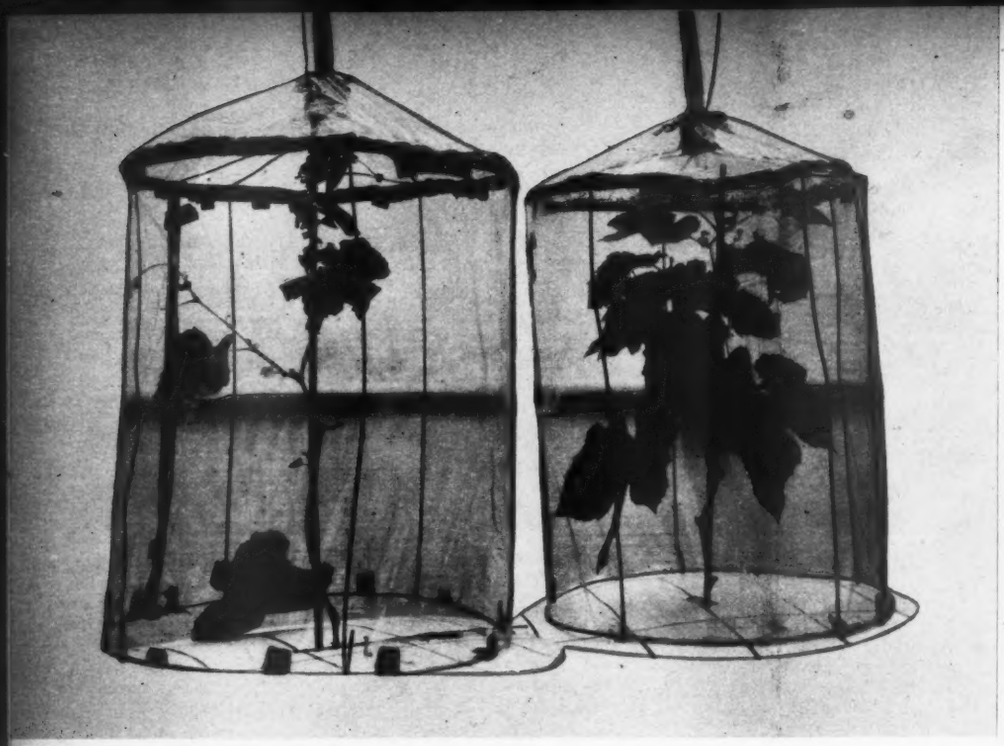
First impressions mean a great deal in roadside marketing. Smiles with a general air of good will and enthusiasm help put the customer in a friendly mood and weaken his sales resistance. The customer is more likely to buy—and come back again—if he enjoys dealing with the owner of the roadside stand. The way the salesman greets his customer, the words and manner he uses in selling, the appearance he makes, all have a bearing on whether or not the sale will be successful.

Most successful market owners make it a rule that the clothes the salesmen wear are clean and spotless. Some even go so far as to provide white sales coats.

No specific rules can be made for ways of making the customer enjoy trading at the market but a good rule is, "Like your customer and he will like you." That plus the intangible attribute, salesmanship, built up only after much experience, will increase roadside sales.

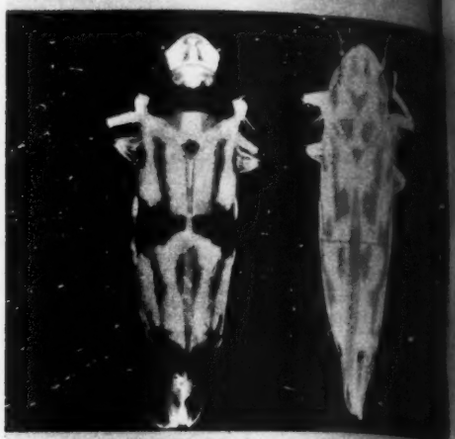
Left—Eyes light up, smiles quicken when this young saleagirl greets her customers.

Above—After the sale is successfully made, the berries are packed in plain paper bags and delivered to the motorist. The two girls made a great hit with berry buyers.



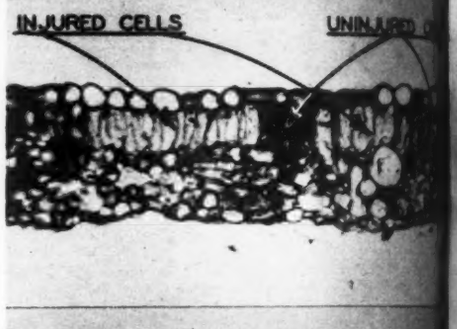
Delaware grape plants in the environment-control chamber at Ohio State University. The plant on the left has been injured by leafhoppers and food manufacture has been reduced to a minimum. Note the loss of injured leaves. On the right is the uninjured check plant.

GRAPES OR LEAFHOPPERS



Above—A male adult grape leafhopper (left) and a female adult leafhopper. Photograph is greatly magnified; actual size of the insects is slightly less than one-eighth inch long. Photo courtesy U.S.D.A.

Below—Cross-section, highly magnified, through a Concord leaf which has suffered moderate leafhopper injury. Note especially the empty, injured cells in the palisade (upper) layer as indicated by arrows.



Below—The Concord grape leaf on the left has been severely injured by grape leafhoppers. The leaf on the right is uninjured. Note the pale appearance of the injured leaf compared with the healthy dark green of the unininjured leaf. The injured leaf will not produce as much food as the uninjured leaf. Leafhoppers, if abundant, may defoliate the vine and cause great damage to the crop. Photo courtesy U.S.D.A.

A STUDY OF LEAFHOPPER FEEDING INJURY TO FOOD MANUFACTURE AND WATER-VAPOR LOSS OF GRAPE LEAVES

BY HOWARD W. BRODY AND N. F. CHILDERS, OHIO STATE UNIVERSITY, AND G. E. MARSHALL, PURDUE UNIVERSITY

THE grape leafhopper is undoubtedly a more destructive insect than growers realize. It is to be found in considerable numbers at some period of the year in practically every vineyard. For example, E. Mortenson and U. A. Randolph list grape leafhoppers as the most widespread insect pest of grapes in Texas, stating that these insects suck the juice from the plant tissues, causing minute yellowish specks on the leaf surfaces and, when abundant, causing the leaves to shed.

Their importance is stressed further by recent investigations at Ohio State and Purdue Universities which show that even moderate infestations of leafhoppers in vineyards can result in serious injury to the foliage and ultimately to the fruit.

The experiments in Ohio and Indiana were conducted to determine the effect of various degrees of leafhopper feeding injury on the photosynthesis (food manufacture) and transpiration (water-vapor loss) of grape leaves. The internal structure of leaves also was studied. Plants of the Concord and Delaware varieties were grown in earthenware jars in the greenhouse and, after reaching a desirable size, were moved into an environment-control chamber for the experiments.

In one experiment approximately 20 leafhoppers per leaf were released in a cheesecloth cage over a Delaware shoot and permitted to feed for 30 days. This treatment reduced photosynthesis 66.7 per cent and transpiration 24.1 per cent. Further feeding injury over an additional 20-day period resulted in the abscission (dropping) of most of the damaged foliage and injured the remaining attached leaves so that photosynthesis and transpiration were stopped entirely.

In another experiment 10 leafhoppers per leaf were permitted to feed for 20 days (4800 "leafhopper-hours") and reduced photosynthesis of Concord grape leaves 13.4 per cent. This experiment was conducted with young growing shoots where periodic measurements of the leaf-area-increase were made. As compared with an uninjured check plant, the rate of growth of the injured shoot was reduced 30 per cent although no leaves abscissed. Therefore, this experiment shows that there is not only a reduction in food manufacture per unit of leaf area but also a reduction in the ultimate size of the leaves.

(Continued on page 14)

FRUIT CROP OUTLOOK FROM U.S.D.A. REPORTS

GROWING conditions during June were favorable for most fruit and nut crops and indicated production of many fruits is slightly larger now than on June 1.

APPLES—In the 38 states with commercial production, the early July condition of apples was reported at 65 per cent, compared with 62 per cent last year and the 1934-39 average of 58 per cent.

Conditions are varied in the eastern States. New England apple prospects are slightly below average because of a heavy June drop and light set of fruit in most orchards. However, in New York a larger crop is reported.

In the central States, the production outlook is unusually favorable in all commercial areas except the Missouri Valley area where the crop is light as the result of freeze damage last November. A large crop is expected in Wisconsin and Kentucky, Tennessee, and Arkansas have unusually good crop prospects.

Condition of apples is average or above in all of the western States except Montana and Oregon. In Washington prospects are favorable and a crop about the same as last year is indicated. In Oregon, conditions are materially lower than last season, and it now appears that production will be lighter than last year.

In general, conditions on July 1 indicate medium to large-sized crops of summer apples. Medium to large crops of most fall varieties are anticipated, excepting Grimes Golden which appears to be rather light in most important areas. Production of winter apples probably will be average or better for all important varieties except Baldwin, Delicious, and Northern Spy.

PEACHES—Production of peaches in 1941, on the basis of July 1 condition, is indicated to be the largest since 1931. A crop of 67,049,000 bushels is in prospect, compared with 54,430,000 bushels in 1940 and the 1930-39 average of 54,356,000 bushels.

PEARS—The July 1 condition of pears indicates a crop of 31,071,000 bushels, which is well above the 1930-39 average production of 27,278,000 bushels but slightly less than last year's 31,622,000 bushels. Sixty one per cent of the total pear crop is expected to come from the three Pacific Coast States, Washington, Oregon, and California.

In the North Atlantic States, production is indicated to be well below last year and below average. In New York, severe damage occurred from late spring frosts. However, prospects improved in nearly all of the North Central States during June and production in this group of States now is indicated to be materially larger than was expected on June 1.

GRAPES—The 1941 grape crop is estimated at 2,553,820 tons, on the basis of July 1 conditions. Production in 1940 was 2,543,910 tons and the 1930-39 average production was 2,264,062 tons. Bumper grape crops are expected in Washington, Missouri and Arkansas. The New York crop was damaged by spring freezes and is only about three fourths as large as the 1940 crop.

CHERRIES—Indicated production of all cherry varieties is 11 per cent smaller than the 1940 crop, but is 15 per cent larger than the 1930-39 average production.

PLUMS—California plum production is estimated at 77,000 tons—the largest crop since 1930. The Michigan plum crop is indicated to be 6,500 tons, compared with 5,800 tons in 1940.

CITRUS—On the basis of July 1 condition, it seems likely that the combined production of oranges and grapefruit may be slightly smaller than that of the 1940-41 season.

HERE'S GRAPHIC PROOF

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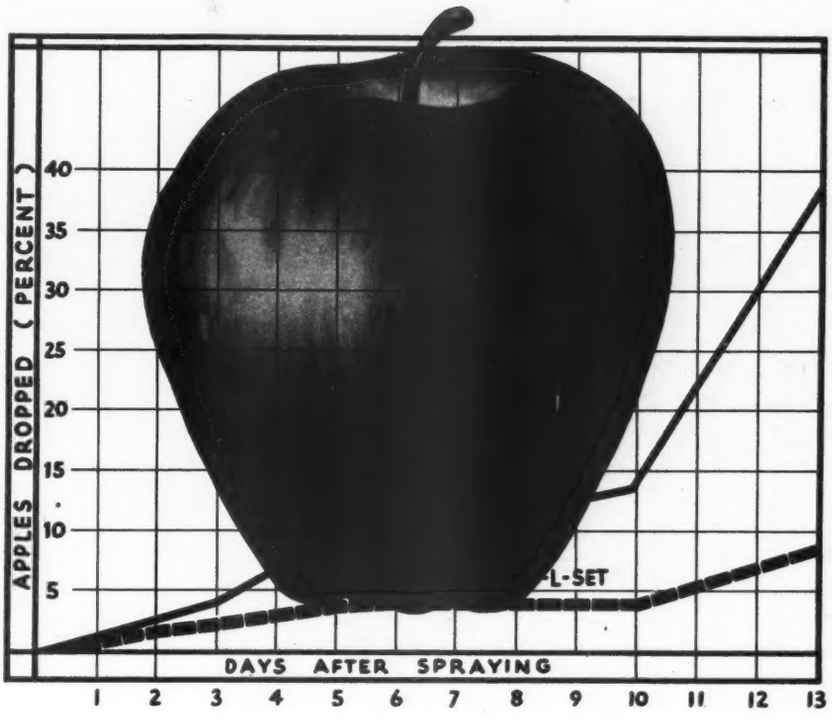

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No one knows what the harvest will bring, but we all know APP-L-SET* will assist tremendously in reducing pre-harvest drop of apples. This graph indicates what can be expected.

At the start of pre-harvest drop of apples, apply APP-L-SET for:

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STATE NEWS

OHIO—Ex-Governor Lloyd C. Stark of Missouri will be the principal speaker at the Annual Orchard Day Program of the Ohio Agricultural Experiment Station in Wooster, August 15.

This is the Diamond Jubilee year for the Ohio State Horticultural Society and two summer orchard meetings are scheduled. The Southern Ohio meeting will be at the Southern Ohio Orchards, Jackson, August 8; the Northern Ohio meeting, at the S. N. Liann Orchards, Port Clinton, August 14.

Lloyd C. Stark

Porter Taylor, Chief of the General Crops Section, A.A.A., United States Department of Agriculture, W. D. Hilbish, Ohio Bureau of Markets, and Dr. J. H. Gourley, Ohio Experiment Station, are on the speakers' program at the first meeting.

H. D. Hootman, Secretary of the Michigan State Horticultural Society, F. H. Beach, Extension Horticulturist, Mr. Hilbish and Dr. Gourley will speak at the northern meeting.

Ottowa County, the largest peach and apple section in the State, will hold its Fruit Festival on August 24 at Gem-Terrace Beach, Catawba Peninsula.

OREGON—After an unusual series of complaints on the lack of quality in berries, being marketed this year, the Oregon State Department of Agriculture has announced that grading and packing laws, passed in last Legislature, will be enforced rigidly in the future. Furthermore, berry boxes must weigh 12 ounces and have no deceptive pack.

NORTH CAROLINA—A total of 2,430,000 bushels of peaches was estimated this year for North Carolina. This is nearly double the 1940 peach production of 1,344,000 bushels.

FLORIDA—Incorporation papers now are being prepared for a papaya growers' co-operative association, according to Fletcher Gardner Papaya Sales, Inc., Miami.

Sulphuric acid mixed with citrus pulp makes a plastic from which Florida citrus field crates possibly will be made in the future. This announcement was made by H. I. Mossbarger, Miami, President and Manager of the Florida Research Foundation which recently started work on a $50,000 program of citrus research.

WASHINGTON, D.C.—It is expected that the support of the United States Department of Agriculture this year will offset the loss of normal export markets for the apricot industry. The Department has announced that it will support growers' prices for the current California crop of natural-condition dried apricots through a purchase program, handled in the same manner as the purchase of other commodities by the Department.

MASSACHUSETTS—Farm and Home Week at Massachusetts State College was celebrated the week of July 28. Scheduled speakers were: Lawrence Southwick and J. K. Shaw, Massachusetts State College; A. F. Yeager, University of New Hampshire; F. S. Howlett, Ohio State Agricultural Experiment Station; L. A. Webster, Massachusetts Department of Agriculture; Chester Halnan, Surplus Marketing Administration, Boston; C. B. Denman, National Association of Food Chains, Washington, D. C.—G. O. OLESON, Extension Editor, Massachusetts State College.

ILLINOIS—American Fruit Growers, Inc., has sold 1,262 acres of fruit acreage in the vicinity of Cobden to Metzler and Sons, Inc. This represents 400 acres set in peaches and 169 in apples.

The new ownership intends to continue the development program which the American Fruit Growers, Inc. started 22 years ago.

MINNESOTA—W. H. Alderman, Chief of the Division of Horticulture at the State's Agricultural Experiment Station, has two questions placed before the Federal Security Agency in Washington in connection with the redesigning of the Hallock berry box. He asks:

"Will a raised bottom box be approved, provided that the bottom is elevated only within certain definite and specified limits to provide adequate clearance and ventilation?

"Will a modification of the present Minnesota style of Hallock container be acceptable if it provides for notches or openings cut in two or more sides of its box to indicate the position of the bottom of the container?"

These questions, Mr. Alderman contends, are fundamental in the problem of new containers for Minnesota berries.—J. D. WINTER, Mound.

MICHIGAN—Minard J. Farley, Jr., Detroit, was appointed Manager of the Michigan Apple Commission and commenced his duties on July 1. He succeeds Roscoe J. Martin, Bangor, who resigned January 1, 1940.

The Commission announces that proposed rules and regulations of the apple advertising law, which authorize the one cent a bushel assessment and which were upheld unanimously by the Michigan Supreme Court last February, have been approved of by State Commissioner of Agriculture, Leo V. Card.

M. J. Farley, Jr.

The State Horticultural Society annual summer tour starts at 9:00 a.m. on August 7 from the orchard of Ransom E. Braman, a mile north and 4 miles west of Belding. The tour will be conducted in the vicinity of Belding and Ionia. Secretary H. D. Hootman, East Lansing, is in charge of arrangements.

MARYLAND—Meeting at Arendtsville, Pennsylvania on July 23, Maryland fruit growers held their annual summer field meeting in Adams County, Pennsylvania. Representatives of the Pennsylvania State College, the University of Maryland Horticultural Department and the Extension Service participated in the program. Arrangements were made by C. O. Dunbar, Horticulturist, Pennsylvania Fruit Laboratory, and Harvey Raffensperger, President of Adams County Fruit Growers' Association.—A. F. VIERHELLER, Sec'y, College Park.

CONNECTICUT—On July 30 the Connecticut Pomological Society joined with the New York and New England Apple Institute for an all day meeting as part of the annual Fruit Day program of the University of Connecticut's Farm and Home Week at Storrs.

Dr. F. S. Howlett, Associate in Horticulture of the Ohio Agricultural Experiment Station, Wooster, discussed "Biennial Bearing in Relation to Various Orchard Practices." Dr. H. H. Mottern, Eastern Regional Research Laboratories of the United States Department of

(Continued on page 12)

APS

CONDUCTED IN THE INTERESTS OF THE AMERICAN POMOLOGICAL SOCIETY

FRUIT BREEDING AND NEW VARIETIES

RECENTLY a group of horticulturists met at Geneva, New York to review the work which is being done in breeding apples, pears, peaches, plums, and grapes at the various state and federal experiment stations.

Certain fundamental concepts were crystallized. First, breeding of better varieties is a regional problem. Secondly, a significant trend in the breeding program is to breed for disease resistance.

As stated by Professor W. H. Alderman, Chief of the Horticulture Division, University of Minnesota, hardiness no longer is the big problem in apples, pears and plums. The big problem is higher quality, better color and good production. Last year the Minnesota Station developed one new apple, "Prairie Spy," and a hard, blight-resistant, good-quality, small-fruited pear, "Bantam."

Peaches are receiving much attention. In the south early varieties of better quality are in demand. In the north the Elberta peach reigns supreme but its quality must be raised. In Michigan the J. H. Hale peach when crossed with other varieties has given rise to a number of superior fruits. Among these are the South Haven and Halehaven. The new variety, Redhaven, introduced last year at the South Haven Experiment Station, is a cross between a Halehaven and a Kalhaven. It is a beautiful red peach of medium size and ripens about one month ahead of Elberta peaches. It is of excellent vigor; the fruit may run small unless it is vigorously thinned.

Dr. M. A. Blake at the New Jersey experiment station has introduced a notable list of new varieties. Golden Jubilee is one which has become commercially important. The Ambergem, a fine canning cling, is doing well. In Michigan alone 60,000 trees of Ambergem have been planted for the canning trade.

Peach breeding also is being carried on extensively by the United States Department of Agriculture at Beltsville, Maryland, Fort Valley, Georgia, and in California. The California work has developed the Maxine which has proven to be productive when other varieties fail. It has done well in the east as well as in the far west. Leeton is another which has done well, particularly in the east.

In the middlewest the cross between the plum and peach has yielded hardy trees, but, in all cases, these are sterile. Treatments with colchicine have, so far, been unsuccessful. The peach and Prunus davidiana cross has produced some hardy, productive trees but this cross will need to be carried further in order to produce satisfactory fruits.

At the New York Station a very extensive breeding program has resulted in the origination of many new varieties of apples, pears, cherries, plums, grapes, raspberries, and strawberries. Some new work with grape understocks has shown a marked increase in the production of grapes.

Dr. M. J. Dorsey, Illinois Experiment Station, has set this year trees of 23 new peach varieties for second tests. Dr. Dorsey is a firm believer in tree-matured peaches and says that the peach, when well-grown and fully ripened, is one of the choicest of fruits.

H. L. Lantz
SECRETARY

THE X DISEASE OF PEACH

By E. M. STODDARD

SINCE peach yellows were first recognized in 1791, virus diseases of peaches have intrigued the scientist and worried the fruit grower. Following in the train of the yellows has been an ever increasing list of virus troubles to which the X Disease, first noticed in Connecticut in 1933, is one of the newer additions.

The visible symptoms of X Disease chiefly are exhibited on the foliage. About eight or nine weeks after growth starts in the spring, part of the foliage on an infected tree suddenly will develop indefinite yellow or light orange areas which rapidly increase in size and number until the entire leaf is involved. With the progress of the disease the color intensifies, the yellow and orange become blended with red, and the leaf becomes stiff and brittle. Eventually most of the foliage on the diseased branches will develop the characteristic symptoms and drop with the exception of the tip leaves which rarely are shed.

When the leaf symptoms appear, the fruit on the affected parts of the tree usually shrivels and falls, or continues to hang on the tree as dried up mummies.

The disease does not appear necessarily over an entire tree at once but may show at first only on a few twigs, or even on only one twig, spreading irregularly over the tree in subsequent years. This habit often makes it difficult to spot an infected tree in the orchard.

The fact that diseased peach trees always are associated with diseased choke cherries leads to the conclusion that the choke cherry is the original offender. It is not known by what means the disease is transmitted from choke cherry to peach but it is supposed that the transmission is made by some insect vector which has not been discovered yet.

To obtain control the choke cherry must definitely be eradicated before the peaches are planted. Mowing or cutting off choke cherries is of no value and it is practically impossible to grub-out the roots. Spraying the foliage with a suitable herbicide has been found to be the most satisfactory method of control and to-date herbicides, having sodium or calcium chlorate as the toxicant, have proved most satisfactory. It is best to eradicate the choke cherry over as large an area as possible. Records show that 300 feet is the greatest distance the disease has spread from choke cherry to peach.

It is important that healthy trees be planted in the orchard. Peaches can become infected in the nursery either from the wild host or by budding with orchard buds from diseased trees. Be sure to get trees from a nursery that can certify its trees are free from X Disease.

Typical defoliation of new growth caused by the X disease of peaches. Characteristic symptom is the failure of the tip leaves to fall off as the other leaves do.

R. B. Neiswander, Ohio Experiment Station, releases the Oriental fruit moth parasite.

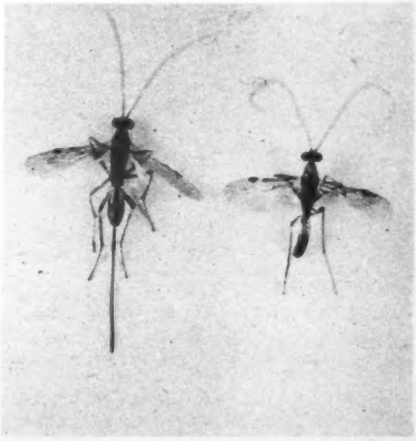
Ss'h! Secret Service Parasites Prey On Fruit Moth

MACROCENTRUS ancylivorus Roh. could be anything from a fish to a bug to the layman but for the peach grower it has a definite meaning. It is the scientific name for the Oriental fruit moth parasite which is a valuable aid to the peach grower, bothered by the Oriental fruit moth.

The female fruit moth parasite has an unerring aim with her oviposiiter, or egg-laying apparatus, for the larvae of the Oriental fruit moth. In them she deposits her eggs. Upon hatching inside, the parasite begins to eat—and he doesn't stop, except for overwintering, until the fruit moth larva is entirely consumed. After the parasite has fed for a while, the fruit moth larva spins its cocoon in which it and the parasite overwinter. With the coming of spring, feeding is resumed until finally the parasite emerges and cleans up what it hasn't been able to get from the inside.

In Ohio collections of fruit moth larvae from various orchards showed that at least 90 per cent were destroyed by the parasites. Approximately 200 parasites are released for every 500 trees.

The female Oriental fruit moth parasite (left) and the male fruit moth parasite.



MY FRUIT IS WORTH MORE MONEY THIS YEAR

"PARMONE" LENGTHENS MY HARVEST PERIOD, GIVES ME BIGGER, BETTER APPLES AND PEARS

"LOOK WHAT I DID with 'Parmone'! I'm not only getting better prices for better fruit, but I'm cutting my *picking* costs, too. I have more time to harvest properly. I cut down my ladder losses, and I have practically *no* spot picking to worry about. "Parmone" is the best news I've had in years!"

See for yourself. Order a supply of "Parmone" now. You'll find it's easy to measure and mix. And you'll find that it gives a uniform finished spray. E. I. du Pont de Nemours & Co. (Inc.), Grasselli Chemicals Department, Wilmington, Delaware.

OTHER DU PONT SPRAYING AND DUSTING CHEMICALS

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***GRASSELLI Lead Arsenate**
***SULFORON Wettable Sulfur**
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Calcium Arsenate
***DUTOX Fluorine Insecticide**
Copper-A Compound
***GRASSELLI Spreader-Sticker**
***LORO Contact Insecticide**
Flotation Sulfur Paste
Bordeaux Mixture
Spray Oils
***PARAPONT Paradichlorobenzene**
Zinc Sulfate—Flake and Crystal
***PARMONE Hormone Spray**
***BLACK LEAF "40"**
***BLACK LEAF "155"**
Cryolite (precipitated)
Copper Sulfate
***FLUXIT Spreader**
Sulfur
Paris Green

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DU PONT
Parmone
REG. U. S. PAT. OFF.
THE LIQUID HORMONE SPRAY

WASHINGTON BERRIES

(Continued from page 4)

as one could find anywhere in the world. Many visitors to the Puyallup Valley are astonished to see Cuthbert red raspberry canes, reaching 10 to 12 feet into the air, and Evergreen blackberry canes, trailing out 16 feet or more along the supporting wires.

Far from the near-paradise of pioneer days when Marshall strawberries, Cuthbert raspberries and Evergreen blackberries met little competition in the market, when insect pests and diseases were unknown in berry fields, and when labor was plentiful, western Washington now has become a mature agricultural region where a farmer can succeed only if he knows the whole business of farming and the special local problems of his area. Root weevils, crown borers and virus diseases must be controlled if strawberry growers are to succeed. The Red Berry mite of blackberries and the Byturus beetle of raspberries, loganberries and boysenberries have forced the adoption of regular spray schedules. Growers of Cuthbert raspberries are bedeviled by the gradual spread of the mosaic disease and more by a peculiar type of winter injury. But, like American farmers everywhere, the berry growers around Puget Sound are beginning to lick their old problems and to take their new ones in stride. They are beginning to realize that berry growing, like everything else, is a constant process of evolution, that the grower who thinks his soil will never need fertilizers, or that the variety he grows never will be improved upon, is due for a sad awakening.

Early settlers found cranberries growing wild along the sea coast and, when some years later cultivated varieties, including McFarlin and Howes, were introduced, they were immediately successful. When the Fireworm threatened this new crop, the State College of Washington established a special cranberry field laboratory at Long Beach, Washington, near the mouth of the Columbia River with Mr. D. J. Crowley in charge. With the successful solution of its most serious problems, the cranberry crop has increased to approximately 600 acres.

The loganberry. flourished in western Washington years after its introduction but it lacked sufficient hardiness and winter injury soon forced abandonment of this crop except in a few protected spots such as Vashon Island, Puget Sound and the western shore of the Sound near Gig Harbor. The youngberry proved more popular than the loganberry but its production is similarly limited. The boysenberry seems to be hardier and its popularity is increasing, especially since it has been frozen in small packages for dessert purposes. None of these berries has in any way taken the place of the Evergreen blackberry which is a superior sort for canning as well as for shipping in fresh condition.

The red raspberry has presented a serious variety problem in recent years. About 1925 the Cuthbert variety began to suffer from a type of winter injury that seems to be peculiar to this region of mild winters. In fact, it results from the mildness of the winters and the fact that the weather is not cold enough to keep the buds and canes dormant. Because of this, growers are showing intense interest in two new red raspberry varieties, developed at the Western Washington Experiment Station at Pullman. These new varieties, named Tahoma and Washington, have proven to be both hardy and productive. Growers near Puyallup expect to obtain new yield records, exceeding seven tons per acre this year from their three-year-old Washington fields while Cuthberts are averaging about two tons. The cultivated blueberry is the newest addition to small fruit crops of Western Washington. Though limited principally to muck and peat soils, it also is showing real promise.

DISEASES OF CHESTNUT TREES

AT the Roanoke meeting of the Northern Nut Growers' Association, G. F. Gravatt and M. E. Fowler, United States Department of Agriculture, discussed diseases of chestnut trees and nuts.

Of major importance among diseases of chestnut trees and nuts is the blight which, since its discovery in 1904 in New York, has wiped out the American chestnut in the United States. There is not a record of one large undamaged original tree among millions; only a few sprouts survive.

A root disease caused by a species of Phytophthora also has destroyed many trees in the Blue Ridge mountains and Piedmont regions. This or a similar root disease has destroyed thousands of chestnut orchards in Spain, France and Italy. This root disease with the blight is estimated to have destroyed over 12 million acres of pure stands of chestnut.

The Bureau of Plant Industry has introduced Asiatic chestnuts on a large scale in an attempt to find blight resistant types. The species of chief interest are the Chinese chestnut, *Castanea mollissima*, and the Japanese chestnut, *C. crenata*. Fortunately, selections of Asiatic chestnuts have been found that are highly resistant to both the blight and the root disease.

Some selections are more susceptible than others but, if the trees are kept in a vigorous growing condition, many trees will throw off the blight without much assistance from the orchardist after they reach a few inches in diameter. However, if the trees are weakened by spring freezes, drought, unfavorable soil conditions, etc., the blight quickly will kill them in many cases.

The Asiatic chestnuts have not been tested extensively for resistance to the root disease but large numbers of inoculations and plantings in land infested with it have led Mr. Gravatt and Mr. Fowler to believe that under most conditions the trees will stand up very well against this disease. The only damage from root rot on Asiatic chestnuts has been on sites where the water table is rather high.

Where Asiatic chestnuts have been planted on fertile sites with good air drainage and cared for properly, they have done well. They do not thrive where alkali is too high in the soil but a number of plantings are growing well on soils with a pH of 7, which indicates that acid soil is not so necessary for good growth as some previously have supposed.

Many trees distributed by the Department have come into bearing and selections have been propagated and named. Among the varieties are Carr, Hobson, and Stoke.
—GEORGE L. SLATE, Sec'y., Northern Nut Growers' Assn., Geneva, N.Y.

BOOKS FOR FRUITMEN

PLANT GROWTH-SUBSTANCES, *By Hugh Nicol*, Chemical Publishing Co., Inc., Brooklyn, N.Y. Second Revised Edition.

The grower who is interested in the technical aspects of plant-growth substances will find much of value in this book. It gives up-to-date information on all kinds of growth substances and their effects on plants.

HUNGER SIGNS IN CROPS, Published by the American Society of Agronomy and the National Fertilizer Association, Washington, D.C.

This book gives in practical form much of the present knowledge of "hunger signs" which develop in growing crops when they lack needed elements. It contains 79 color plates and 95 halftone illustrations.

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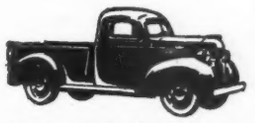

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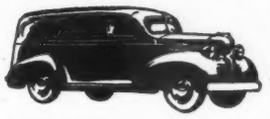

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Above prices are delivered at Detroit, Federal taxes included. Transportation, state and local taxes (if any) extra. 112 standard chassis and body models available.

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In what shape is YOUR truck for the "long pull" ahead? *This* is the year—NOW'S the time to buy a QUALITY truck—one you can depend upon for EXTRA thousands of miles of trouble-free, low-cost operation—a Dodge *Job-Rated* truck! Your Dodge dealer will give you a great "deal"—RIGHT NOW! See him . . . *today!*

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Job-Rated MEANS A TRUCK THAT FITS YOUR JOB!

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the pre-harvest drop spray

MAKES MONEY FOR YOU!

1. It reduces picking cost—fewer Apples are knocked off by pickers.
2. Reduces loss from wind falls—the Apples hang on the trees tighter.
3. Because Apples stay on the trees until maturity, they have better size and color—they bring better prices.
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5. Reduces possible loss from storage scald—tree ripened fruit better resists scald.
6. Fewer drops mean more profit per tree.
7. FRUITONE is tested and proved under field usage.

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STOP BRUISES & STEM PUNCTURES

SAVE FRUIT AND PROFIT with the original

"Wenatchee" PATENTED FRUIT PICKING BAGS

Endless steel frame keeps bag open, fits body comfortably. Adjusts to ½ bu. capacity for tender fruits . . . opens to 1 bu. capacity when desired. Empties easily from bottom. Leather-reinforced where the wear comes. Belt strap. Wide adjustable web suspenders. Specially built release snap.

ASK YOUR ORCHARD SUPPLY DEALER OR

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MANUFACTURERS ST. PAUL, MINN.

USE WELLS and WADE PICKING BUCKETS and have no bruised fruit

MANUFACTURED BY WELLS AND WADE WENATCHEE, WASH.

FOR BETTER PRICES AND MORE PROFITS

Use NIAGARA-STIK

The Anti-Drop Apple Spray

● Yes! You can prevent premature apple drop by judicious use of *Niagara-Stik* . . . the new Niagara hormone anti-drop apple spray. *Niagara-Stik* prevents chemical changes in the cell walls of fruit stems, thus stopping abscission. The result . . . apples stay on the tree until ready for harvest, permitting greater yield of choice fruit, thus increasing prices and profits. And best of all, *Niagara-Stik* is economical to use . . . less than 2c per bushel harvested.

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APPLELOK
Napthaleneacetic Acid Apple Spray

FOR LESS DROP
BETTER COLOR
LARGER SIZE
EXTRA QUALITY

Applelok Harvest Spray has been proven successful by actual orchard tests. The concentrate contains 4 grams of Napthaleneacetic Acid per pint.

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WESTVILLE LABORATORIES
BOX 1363, NEW HAVEN, CONN.

STATE NEWS

(Continued from page 8)

Agriculture, Philadelphia, discussed "Juice and Other Apple By-Products."

In the afternoon the New York and New England Apple Institute held its annual meeting. Mr. Thomas H. O'Neill, Manager, and John Chandler, President, of the Institute were on the speakers' list.

Reports from the meeting indicate that the aggregate apple crop this year for Connecticut will be about the same as in 1940.

The Connecticut Pomological Society will hold a picnic for members and their families at Rocky Neck State Park, Niantic, August 14.—H. A. ROLLINS, Extension Service Storrs.

KENTUCKY—July 31 was the date set for the annual summer meeting of the Kentucky State Horticultural Society at Princeton.—TED COOPER, Paducah.

VIRGINIA—With a maximum capitalization of $25,000, Blue Ridge Fruit Growers' Co-operative, Inc. has obtained a charter from the State Corporation Commission.

Organized in 1922 under the agriculture co-operation association act, this Co-operative will have principal offices at Sperryville. It is authorized to engage in any activity in connection with the marketing, selling, storing, or processing of its members' products.

Officers are: R. Graves, Syria, President; R. W. Miller, Sperryville, Vice-President; L. J. Kelly, Sperryville, Secretary-Treasurer.

Virginia fruit growers held a meeting at Blacksburg, July 30, in conjunction with the Institute of Rural Affairs. Among topics discussed were, "This Year's Fruit Marketing Outlook, The Fruit Growers Place in Our Nutrition Program, Apple Juice as an Outlet for Low Grade Fruit, The Place of Hormones in Fruit Production."

COLORADO—Mesa County peach growers voted and failed to approve last month of the compulsory peach packaging rule which would have required the packaging of all market peaches and discontinued the bulk movement of fruits to markets. State Director of Agriculture, W. C. Sweinhart, necessarily declined to include the proposed amendment in the existing peach marketing agreement and order because less than two-thirds of this season's growers and also growers representing more than two-thirds of last season's production, opposed the amendment.

TEXAS—F. B. Holland, Mission, was re-elected President of the Rio Grande Valley Citrus Exchange last month. He represents the Mission Citrus Growers Union on the board.

SOUTH CAROLINA—Spartanburg County orchardists have committed themselves to a rigid standard in connection with the quality of their peaches in a step to improve and excel the quality of their fruits. No peaches under two inches, including Elbertas, will be sent in the future to out-of-state markets. Also, orchardists of this Country have agreed to discontinue the planting and shipping of such varieties as Mayflowers, Uneedas, Early Roses, and Red Birds which are early varieties.

CALIFORNIA—When the southern California fresh fruit terminal market in Los Angeles was glutted with peaches last month, the Fresh Fruit and Vegetable Institute went into action and arranged for spot announcements on two radio stations which, according to R. M. Carson of the Institute, brought about relief within 48 hours.

The Fresh Fruit and Vegetable Institute is only in its first month of operation but already it has proven to be a highly justifiable co-operative effort.

WASHINGTON—Truman Nold, Manager of the National Apple Institute, is making a tour, gathering information of importance to the apple industry and discussing the work of the Institute. He talked in Wenatchee, July 25.

OPPORTUNITY ADS

Only 15c a Word—CASH WITH ORDER. Count each initial and whole number as one word. ADDRESS: AMERICAN FRUIT GROWER, 1370 Ontario Street, Cleveland, Ohio

BABY CHICKS

DON'T PASS UP THE GREATEST OPPORTUNITY since the World War to make big profits out of poultry. Government wants you to raise more chickens for broilers and layers. Do your bit by keeping the breeder going. Davis chicks will enable you to make more profits by raising more chicks. Write today for catalogue prices and early delivery dates. DAVIS POULTRY FARM, Route 3, Ramsey, Indiana.

HINKLE STRAIN BLENDED CHICKS ARE TOPS FOR both broilers and layers. In our strain blended chicks, you get extra quick growth, livability and high egg production. We will be able to give you reasonably quick delivery of all heavy broiler breeds. Can furnish Cockerels and Pullets. Write for prices and free catalogue. GREENSBURG HATCHERY, Box 56, Greensburg, Indiana.

DEPENDABLE CHICKS, $3.95 PER HUNDRED UP. Twenty breeds. Oldest Illinois-U.S. Approved Hatchery, known for fair dealing. CHESTNUT HATCHERY, Box 25, Chestnut, Illinois.

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IMPROVED QUALITY ITALIAN QUEENS 3 FOR $1.00 until October first; order from this ad; delivery guaranteed. FLOWERS BEE COMPANY, Jesup, Georgia.

BERRY BOXES

GREEN AND WHITE BERRY BOXES DISPLAY your fruit attractively and create consumer demand Liberal discounts. Write ROLLRIM BOX, Benton Harbor, Michigan.

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DELICIOUS, IMPROVED BLUEBERRIES. GOVERNment Hybrids, large as grapes. Two-year plants, 2 for $1.00, 5 for $2.00; bearing three-year, $1.00, 3 for $2.00. All prepaid. GEO. C. MORSE, Williamson, New York.

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WRITE FOR FREE, BIG 1941 TRACTOR PARTS CATalog, all makes. Tremendous savings. Satisfaction guaranteed. CENTRAL TRACTOR WRECKING COMPANY, Boone, Iowa.

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TREMONTI APPLE ORCHARD, WINCHESTER, VIRginia 185 acres, 2800 apple trees with present crop, several varieties; sprayer; delivery truck; two dwellings; barns; packing houses; sorting machinery; other small buildings. Good condition. Reasonable. For information, address G. H. GUDEBROD, agent, Huntington, L. I. New York.

CIDER PRESSES, ALL SIZES, NEW AND REBUILT, Electric Magnetic Apple Sizers, Pasteurizers, Boilers, Supplies. W. G. RUNKLES MACHINERY COMPANY, 185 Oakland St., Trenton, New Jersey.

CUTLER-MOE FRUIT WASHER. ORIGINAL COST around $2800.00. Price $585.00. Write DON SULLIVAN, Room 10, Savings Bank Building, Chillicothe, Ohio.

114 ACRE FRUIT AND TRUCK FARM ALONG MAIN Highway, 1100 bearing, best varieties apples and peaches, 3500 grapes, house, cottage, barn, and outbuildings; machinery, electricity, water, woodland, price $8,000 with terms. N. B. SIMPSON, Hollidaysburg, R. D. No. 1, Penna.

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WHISKEY BARRELS, GLASS GALLON JUGS, COTton Duck Canvas, send for bargain price list. SHO-OFF ORCHARDS Products Co., Peoria, Illinois.

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WANTED TO BUY

WANTED—IMPROVED ORCHARD. TERMS, WRITE fully. D. R. BRUBACHER, Huntington, Ind., R. R. No. 3.

BRUSHER that cleans Apples, Potatoes, Peaches, Etc.
WRITE FOR FOLDER AND PRICES
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NEW

- SPEED SPRAYER
- SURE GRIP HYDRO TIRE
- BULLETIN

By HANDY ANDY

SPEED SPRAYER •

Operating on an entirely new principle, the Speed Sprayer, developed by the Stauffer Chemical Comany, has been in use in apple and peach orchards and citrus groves.

With a 75 h.p. Hercules motor which turns a 48 inch propeller at high speed, it develops a wind stream sufficient to carry solutions over and through the tops of high trees. The liquid is discharged under low pressure by a centrifugal pump into the wind stream through a series of jets.

When spraying large trees the solution is discharged from one side of the sprayer and from both sides when the sprayer passes between rows of small trees. The operator has levers which control the height of the spray and valves which regulate the discharge from the four banks of jets.

Operation of the Speed Sprayer is facilitated by a supply unit which is available for mounting on a truck chassis. The centrifugal-filler pump is operated by a power take-off from the truck transmission. This 500 gallon supply unit is filled and emptied by the same pump and only three minutes are required to recharge the sprayer tank in the field.

SURE GRIP HYDRO TIRE •

One hundred per cent water-inflation of farm tires not only will be possible as a result of developments made by Goodyear Tire and Rubber Company but also will be economically practical because of the various advantages which this principle constitutes.

At present the "hydro-pneumatic" principle, wherein tires are filled only partially with water, is in common use. However, the 100 per cent water inflation method still is in development stages and tires, using this principle, are not available yet to the public.

Advantages afforded by the new Hydro-Tires include:

(1) Increased traction at no extra cost as a result of the increased volume and weight of water.

(2) Reduction of bounce on rough ground.

(3) Reduction of sidewall buckle breaks.

(4) Tires inflated 100 per cent with water require practically no attention since water will not diffuse through the rubber as does air.

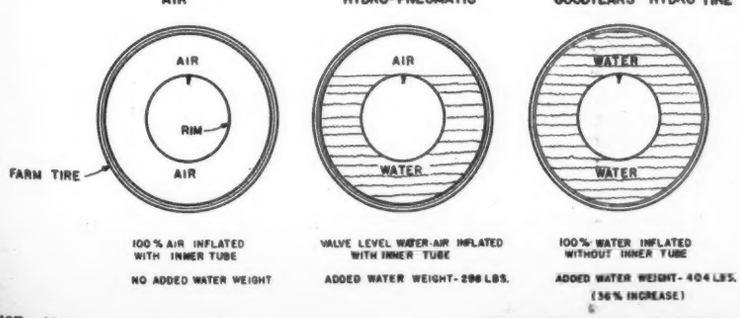
Goodyear has perfected means of water-inflating farm tires without inner tubes and also for full water-inflation of tires containing inner tubes.

The new method will be applied mostly to use on tractor tires although it may be used satisfactorily on other types of farm equipment. Tests reveal that the principle is applicable with various sizes and types of tractor tires as well as both front and rear tires.

BULLETIN •

The history of champagne dates back to 1688 in Europe and to around 1850 in America. The story of its importance and rapid growth in the viticulture of this country has been compiled briefly and is published by The M. Hommel Wine Company. The booklet is called "Short History of Pioneer Champagne Producers of America."

STEPS LEADING TO THE DEVELOPMENT OF THE GOODYEAR SURE GRIP HYDRO TIRE



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If this period in a woman's life causes you to get easily upset, cranky, nervous, blue at times, suffer weakness, dizziness, hot flashes, headaches, distress of "irregularities"—

Try Lydia E. Pinkham's Vegetable Compound — made *especially* to relieve female distress due to this functional disturbance. Pinkham's Compound helps build up resistance against annoying symptoms of "middle age." Famous for over 60 years!

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Editorially Speaking

FRUIT IN FRONT RANKS OF NEW ECONOMY . . . . .

IF THE whisperings from Washington prove to be true, American agriculture is going to be regimented into an "authoritarian program" which will be just about as comfortable for every one concerned as tight shoes. We are told, too, that when the announcement of this order comes from the Secretary of Agriculture, it will be made perfectly plain that agriculture is not being asked to "shoulder arms" merely for the duration of the national emergency but is to be drafted, organized and regimented into a new and permanent economic program.

Until we get used to it—and that may take many, many years—this new order of things probably will, as we said before, prove to be as uncomfortable and painful as a new and tight pair of shoes. The harnessing process is going to hurt particularly for the fruit grower who has yet to experience extensive Federal regulations. The plan, it is rumored, is to include all agriculture and not just wheat, corn, cotton, tobacco, and rice. The experts in Washington, who are now busy working on the details, are said to have recognized that in any agricultural order designed to meet the modern needs of the nation, either during a defense emergency or to prepare for the future, the fruit industry must be placed in the front ranks because of its importance to the health of the people.

This new order of things in agriculture, when and if it comes, may hurt and adjustments may be difficult. But even when it hurts the most, growers can console themselves with the fact that, in preparing a plan for the economic future of the country, those in command could not do otherwise than recognize the prime importance of the fruit industry.

PEACH GROWERS DETERMINED TO SELL HUGE CROP . . . . .

FACED with the largest crop since 1931, peach growers are going into action and selling their crop with a surprising amount of vigor. In June they formed a national peach promotion organization and established state peach marketing committees. Posters are being sent out, a peach recipe service tells the consumer how to use peaches, and house wives are being urged to buy a bushel of peaches for preserving which is in line with the government home-canning for defense program. Many growers are paying one-quarter of a cent a bushel to support this work. Action is the order of the day and peach growers personally are seeing to it that their crop will be sold profitably.

AMERICAN AND CANADIAN GROWERS WILL MEET . . .

DURING the first week in August, a committee of American apple growers selected from officers of the National Apple Institute and the National Planning Committee will meet with Canadian growers in Toronto to discuss coming exports of Canadian apples into this country. If definite conclusions are arrived at, much of the misunderstandings and confusion which existed last fall should be cleared up. A full summary of this important meeting will be published in the September issue of AMERICAN FRUIT GROWER.

TOURING THE ORCHARDS . . . . .

BETWEEN the peak of spray season and harvesting is an ideal time to join in one of the numerous orchard tours and see what other growers are doing. It is neither a waste of time or money to add to one's knowledge of his own business.

Often such trips serve as a well-earned vacation and usually the cost is low. It is the type of trip which the whole family may enjoy.

This year, because of the national emergency, new problems in production and marketing have arisen. At the summer tours, growers will see how orchardists in other localities are meeting these problems as well as have an enjoyable time with their own families.

LEAFHOPPERS

(Continued from page 6)

To determine how leafhopper feeding affects the internal structure of grape leaves, a number of injured leaves were cross-sectioned and examined under the microscope. The insect punctures the leaf, almost without exception through the lower surface, and its proboscis extends through the leaf to the upper layer of cells (palisade) which are the first to be injured. Possibly the insect secretes a digestive enzyme into the cells which dissolves the cell contents. The dissolved contents may then be sucked up by the leafhopper, resulting in groups of empty cells which appear as minute yellowish-green stipples.

It would be well to emphasize here the importance of early control of grape leafhoppers. The various species of leafhoppers which attack grapes spend the winter in the adult stage and become active in the vineyards and orchards of the middle west from the middle to the latter part of June. These adults feed extensively during their egg-laying period but leave less visible effects than the broods of nymphs (young) which follow.

The females lay eggs soon after they emerge from hibernation and die a short time afterward. A few weeks may elapse between the time the adults die and the newly hatched nymphs become abundant. For this reason growers are apt to dismiss the leafhopper problem lightly, assuming that the population will be low for tht rest of the season. This feature of the life history of these insects, plus the results of the experiments already described, show that it is highly desirable to secure early control of grape leafhoppers. The importance of such early control may be brought more forcibly to the realization of the grape grower if a few population figures are cited.

Eggs of the new generation began to hatch this season in southern Indiana and Ohio about the middle of June. Counts made in a vineyard with a typical infestation showed that on June 16 there were an average of 2 young leafhoppers per leaf. On June 22 there were 6; on June 30 there were 10, and on July 7 there were 10. One year the average population was 31 per leaf on August 2 and 50.1 on August 12.

One thorough application of a nicotine or similar spray properly timed should give good control of the overwintering adults before egg-laying has taken place and so reduce the population for the remainder of the summer that further control measures may not be necessary. The best time for such an application cannot be predicted in advance; it usually will come some time in late May or early June in Ohio and Indiana and neighboring states, according to the location of the vineyard, but the grower must learn to recognize the insects and watch conditions in his own planting to determine exactly when the spray might be applied to best advantage.

Further applications may be made whenever the population of leafhoppers indicates their need, although Purdue experiments show that reducing the population after August 1 as little as two-thirds has a very striking effect on the fruit and foliage. Such a mediocre measure of control is not difficult to attain. It should be borne in mind, however, that leafhoppers can be killed only by directly hitting them with the spray chemicals, making complete coverage, especially of the lower surfaces of leaves, essential for good control. General sanitation around the vineyard and cleaning of fence rows will eliminate possible places where adult insects can hibernate and thus reduce the number which will overwinter successfully.

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